

High Volume, Low-Cost Production Process for High-grade Silicon Carbide Optics, Phase II

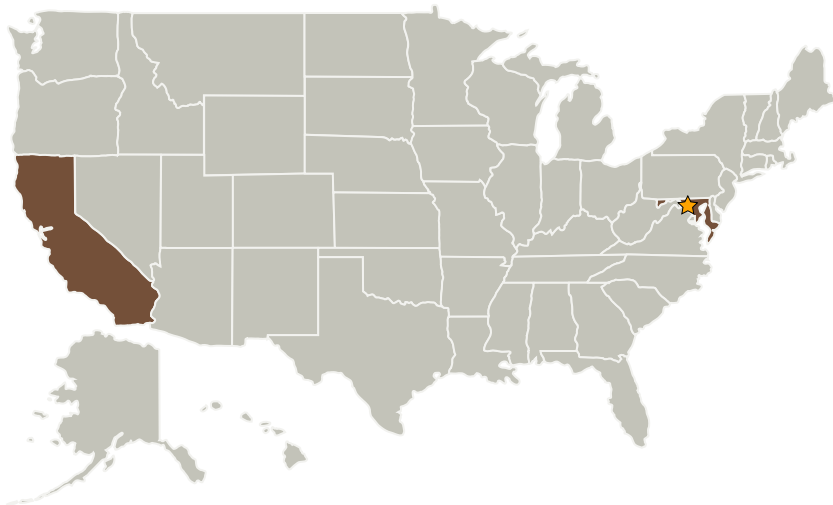
Completed Technology Project (2005 - 2007)



Project Introduction

The following proposal summarizes the process by which Trex will utilize out patented CVC (Chemical Vapor Composite) SiC process to fabricate near net shape lightweight SiC mirrors with high as-deposited optical surface quality. In the first task of this program, Trex will continue our development program to optimize the as-deposited surface quality of our CVC SiC. We have selected several different mandrel materials and surface preparations for these trials. The as-deposited surface figure and roughness will be optimized for each of the selected systems. The current CVC SiC process replicates the standard mandrel surface precisely. Trex will be looking to retain this capability using higher quality surface mandrels. In addition, Trex will also work with our STTR partners at the University of Arizona to design, fabricate, and test an as-deposited CVC SiC x-ray mirror for a specific program. Included within this effort will be the mounting structure design and fabrication. Using the proposed developments within this program, all post-deposition machining processing will be minimized. The potential savings in both time and cost offered by this technical development program would directly affect nearly all high performance optical applications.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission
Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center
(GSFC)

Responsible Program:

Small Business Innovation
Research/Small Business Tech
Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Trex Enterprises Corporation	Supporting Organization	Industry	San Diego, California

Primary U.S. Work Locations

California	Maryland
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.4 Manufacturing
 - └ TX12.4.3 Electronics and Optics Manufacturing Process